

AMENDMENTS TO THE CLAIMS:

Listing of claims:

This listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently Amended) A foamed partly-finished product, comprising destructured or complexed starch foamed as a continuous phase, having a density of from 20 to 150 kg/m³, cell size of from 25 to 700 μ m and a cell distribution such that 80% of the cells have, in the absence of stretching, a size ranging from 20 to 400 μ m, said destructured or complexed starch is a natural starch derived from one member selected from the group consisting of potato, wheat, maize and tapioca starch, wherein the starch of the foamed product has an intrinsic viscosity in DMSO at 30°C of from 0.3 to 1.5 dl/g and the foamed partly-finished product has a closed cell morphology in which the cells are substantially non-communicating with one another.

2. (Previously Presented) A foamed partly-finished product according to claim 1, having a density of from 25 to 100 kg/m³, cell size of from 40 to 600 μ m and a cell distribution such that 80% of the cells have, in the absence of stretching, a size ranging from 25 to 300 μ m.

3. (Previously Presented) A foamed partly-finished product according to claim 2, having a density of from 30 to 70 kg/m³ and a cell distribution such that 80% of the cells have, in the absence of stretching, a size ranging from 30 to 200 μ m.

4. (Previously Presented) A foamed partly-finished product according to claim 3, having a density of from 30 to 70 kg/m³ and average cell size ranging from 80 to 120 μ m.

5 – 6 (Canceled)

7. (Previously Presented) A foamed partly-finished product according to claim 5 1, wherein the modified starch is selected from the group consisting of physically or chemically modified starches, ethoxylated starches, acetate starches, butyrate starches, propionate starches, hydroxypropylated starches, cationic starches, oxidated starches, cross-linked starches, gelatinised starches, starches complexed with molecules and/or polymers able to give “V” type complexes, dextrinated starches and starches grafted with chains selected from polyesters, polyurethanes, polyester-urethanes, polyureas, polyester-ureas, polysiloxanes, silanes, titanates, and fat chains.

8. (Previously Presented) A foamed partly-finished product according claim 1, in the form of products with hinges obtained in a forming phase capable of resisting at least ten consecutive opening/closing cycles at 35% RH and 23°C without breaking, by using 2 - 4 seconds for each opening and closing operation.

9. (Canceled)

10. (Previously Presented) A foamed partly-finished product according to claim 1, wherein the intrinsic viscosity in DMSO at 30°C is from 0.4 to 1.2 dl/g.

11. (Previously Presented) A foamed partly-finished product according to claim 10, wherein the intrinsic viscosity in DMSO at 30°C is from 0.6 to 1.1 dl/g.

12. (Previously Presented) A foamed partly-finished product according to claim 1, containing one or more thermoplastic polymers with a melting point of from 60 to 175°C.

13. (Previously Presented) A foamed partly-finished product according to claim 12, wherein the thermoplastic polymer is selected from the group consisting of a polymer of natural origin which can be modified or non modified, a polymer derived from cellulose as cellulose acetate, cellulose propionate, cellulose butyrate and their co-polymers, with a degree of substitution lying between 1 and 2.5; polymers of the alkyl cellulose, hydroxy alkyl cellulose, carboxy alkyl cellulose type, carboxy methyl cellulose, nitrocellulose and chitosan pullulan or

casein and casinate, zein, soya protein, alginic acid and alginates, natural rubbers, polyaspartates; glutens, and dextrens.

14. (Previously Presented) A foamed partly-finished product according to claim 12, wherein the thermoplastic polymer is selected from the group consisting of biodegradable polymers of synthetic or fermentative origin, polyesters of the type including polymers or co-polymers of C₂-C₂₄ aliphatic hydroxy acids, or their corresponding lactones or lactides, polymers of lactic acid having various D/L lactic acid ratios, co-polymers of polylactic acid with aliphatic and aliphatic-aromatic polyesters, polycaprolactone, polyvalerolactone, their co-polymers and also polyesters derived from difunctional acids and aliphatic diols, aliphatic-aromatic polyesters, co-polymers of the type including alkaline-terephthalate adipate treated or not with chain extenders, optionally with quantities of tereftalic acid less than forty mole percent, epoxy resin and bisphenolic resin.

15. (Previously Presented) A foamed partly-finished product according to claim 12, wherein the thermoplastic polymer is a polymer containing hydrophilic groups intercalated in hydrophobic sequences selected from the group consisting of ethylene-vinylalcohol co-polymers, ethylene vinylacetate co-polymers, acrylic esters, acrylic ethylene-ester co-polymers, co-polymers of ethylene with unsaturated acids selected from the group consisting of acrylic acid, methacrylic

acid, crotonic acid, itaconic acid, co-polymers with hydrophilic units with a functional alcoholic a carboxylic group in aliphatic polyesters andlor aromatic-aliphatic polyesters, and epoxy resins including resins containing bisphenols.

16. (Previously Presented) A foamed partly-finished product according to claim 12, wherein the thermoplastic polymer is a polymer able to form hydrogen bonds with the starch selected from the group consisting of polyvinyl alcohol with various degrees of hydrolysis, optionally modified with acrylates or methacrylates, and polyvinyl alcohol preliminarily plastisized or modified for the purpose of lowering its melting point.

17. (Previously Presented) A foamed partly-finished product according to claim 12, containing polymers selected from the group consisting of polyvinylalcohol, copolymers of an olefin polymer, ethylene, with a monomer chosen from vinyl alcohol, vinyl acetate, acrylic acid and methacrylic acid, aliphatic polyesters, caprolactone, the polyalkylene succinates, the polymers of azelaic acid, sebacic acid, brassilic acid and their co-polymers, aliphatic polyamides, polyalkylenesebacates, polyalkylene-azelates, polyalkylenebrassilates, with diols comprised between C₂-C₁₃, polyesters containing dimeric acids, aromatic-aliphatic polymers of the polyalkylene terephthalate adipate type and the epoxy resins, with bisphenolic groups.

18. (Previously Presented) A foamed partly-finished products according to claim 1, containing nucleating agents for the starting composition in concentrations of from 0.05 to 10% by weight.

19. (Previously Presented) A foamed partly-finished product according to claim 18, wherein the nucleating agent is constituted by inorganic compositions selected from the group consisting of talc (magnesium silicate), calcium carbonate, sulphates of sodium and barium, titanium dioxide, optionally surface treated with adhesion promoters.

20. (Previously Presented) A foamed partly-finished product according to claim 1, containing organic fillers and fibres selected from the group consisting of wood powder, cellulose, grape residue powder, bran, maize husks and other natural fibres in concentrations of from 0.5 to 20%.

21. (Previously Presented) A foamed partly-finished product according to claim 1, containing nucleating agents, lubricants and/or dispersants and plasticisers.

22. (Previously Presented) A foamed partly-finished product according to claim 1 containing alimentary oils selected from group consisting of palm oil, maize oil, soya oil, sunflower oil, C₁₂ to C₂₂ fatty acids, their glycerides with various degrees of substitution, and hydrogenated fats of animal or synthetic origin which are solid at least at ambient temperatures, or above ambient temperatures, to improve the moisture resistance and reduce the wetability by water.

23. (Previously Presented) A foamed partly-finished product according to claim 1 containing weak acids selected from the group consisting of lactic acid, tartaric acid, and citric acid to regulate the viscosity of the starch during the extrusion process.

24. (Previously Presented) Products and partly-finished products obtained from the foamed partly-finished products of claim 1, obtained by lamination with layers of non-woven fabric, woven fabric, paper, biodegradable and non-biodegradable films or aluminium.

25. (Previously Presented) Products and partly-finished products according to claim 24 produced by lamination with non-woven fabric or woven fabric of natural fibres, fibre based on polysaccharides or fibres produced starting from biodegradable polymers.

26. (Previously Presented) Products and partly-finished products according to claim 24 coupled with films constituted by biodegradable polymers.

27. (Previously Presented) Products and partly-finished products obtained from the foamed partly-finished products of claim 1, by way of coating with emulsions, dispersions, solutions, hot melts of biodegradable polymers.

28. (Previously Presented) Products and partly-finished products according to claim 26, in which the films are coupled to the partly-finished products by temperature and/or the application of suitable biodegradable adhesives based on polymers of lactic acid, polyurethanes, polyvinylactates and polyvinylalcohols, proteins, starches, dextrans and other polysaccharides.

29. (Previously Presented) Products and partly-finished products according to claim 26, wherein the films can be obtained from cast and bubble film-forming and can be co-extruded with an adhesive surface for the foamed support.

30. (Previously Presented) Products and partly-finished products according to claim 29, wherein the films have a melting point greater than 60° C.

31. (Previously Presented) A sheet according to claim 26 formable as a non-laminated sheet.

32. (Previously Presented) Products and partly-finished products obtained from the materials of claim 1, treated with natural and synthetic waxes with melting points up to 120°C.

33. (Withdrawn) A process for the production of foam sheet by extruder comprising the steps of:

- supplying to an extruder starch with an intrinsic viscosity lying between 2 and 0.6 dl/g in the presence of water in proportions from 6 to 30% by weight of the total composition, in quantities such as to permit the starchy component constitute the continuous phase of the material, possibly a natural or synthetic thermoplastic polymer and further additives such as plasticisers, lubricants, nucleating agents, surfactants, weak acids and fillers.
- complete melting of the starchy mass

- introduction of CO₂ in quantities lying between 0.4 and 10%, preferably between 0.8 and 7% and more preferably between 1.0 and 4% by weight into the melt at a temperature lying between 100 and 180°C, preferably between 120 and 160°C; and

- working the melt for between 5 and 40 minutes to homogenise the distribution of the mixture of expanding agents, water and CO₂ and, possibly, chemical expanding agents such as citric acid and bicarbonate, and to adjust the viscosity of the composition to between 1.5 and 0.3 dl/g.

34. (Withdrawn) A process according to claim 33 in which the extrusion of the melt takes place through a flat or tubular head able to impart to the melt shear rates comprised between 500 and 50,000 sec⁻¹ preferably between 800 and 40,000 sec⁻¹ and more preferably between 900 and 35,000 sec⁻¹.

35. (Withdrawn) A process according to claim 34 in which the extruded tubular sheet is blown with air or steam to impart by biaxial stretch, confer smooth surfaces and hold the sheet at the desired moisture point, opened, calendered, possibly further conditioned and wound on a coil.

36. (Withdrawn) A process according to claim 34 in which the tubular sheet is blown with air or steam to distend the sheet itself and hold it at the desired moisture point, opened calendered and cut into flat sheets.

37. (Withdrawn) A process according claim 34 in which there is produced a partly-finished product in the form of a tube which is calibrated, conditioned and then collected.

38. (Withdrawn) A process for forming partly-finished products according to claim 1 which comprises:

- conditioning the product or partly-finished product to a water content between 6% and 30% preferably between 10% and 25% and more preferably between 15% and 20% and at a temperature between 40 and 120 °C and preferably between 40 and 100° C,
- forming in a male-female impact mould between ambient temperature and 80° C
- possible creasing to provide a product formed with a density between 40 and 400 kg/m³ preferably between 45 and 200 kg/m³ and more preferably between 50 and 150 kg/m³ possibly having a hinge resistant to repeated closure/opening cycles.

39. (Previously Presented) Combinations of partly finished product according to claim 1 in multilayer structures to form products of various geometry.

40. (Previously Presented) Combinations of materials according to claim 1, with other supports to provide multilayers mixed with wood, paper, cardboard, non-woven fabric, woven fabric of natural or synthetic fibres, aluminium or other metals.

41. (Withdrawn) Products formed according to claim 38, used principally in the food packaging sector and in particular as trays for foods with a lifetime of the order of 30 days for packaging meat, dairy products, vegetables, eggs, fruit; display containers for glass, plastic or metal packages of small dimensions, containers for fast food such as containers for hamburgers, potato chips and similar products; multi compartment containers for fast food and meals.

42. (Withdrawn) Products formed according to claim 38, used for hot and cold liquids as cups for coffee and drinks, containers for soup of the type used in Asiatic countries and for other products having a high liquid content for fast food and meals.

43. (Withdrawn) Products formed according to claim 38, used as containers for objects of small weight such as multi- compartment trays for portable telephones and small electrical domestic appliances, in particular, with mechanical properties such as to avoid phenomena of abrasion encountered with containers of pressed paper etc.

44. (Withdrawn) Products according to claim 38, in the form of trays for wrapping meat in supermarkets which provide for the use of absorbent or super absorbent materials for eliminating the presence of blood, fitted directly into the sheet, applied to the surface or in intermediate layers between two shells welded together or under the film which renders the tray impermeable.

45. (Withdrawn) Products formed according to Claim 38, in the form of containers for oven and microwave use possibly surface treated to avoid excessive weakening of the container by the effect of the removal of the water.